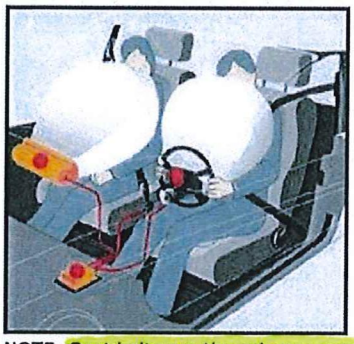
Products

Frontal Airbags



NOTE: Seat belts are the primary mode of protection and should always be used even if a vehicle is equipped with an airbag.

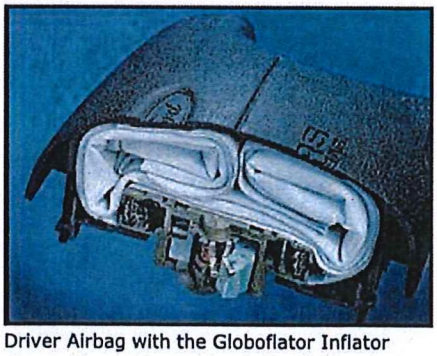
Protective Effect
Frontal airbags are estimated to reduce the fatalities in head-on collisions by 25% among drivers using seat belts and by more than 30% among unbelted drivers. The fatalities among belted front seat passengers are reduced by about 15% and by more than 20% among unbelted front seat occupants.

With a combination of a seat belt and an airbag, serious chest injuries in frontal collisions can be reduced by 65% and serious head injuries by up to 75%.

Autoliv's Frontal Airbag System
A modern frontal airbag system consists of an electronic control unit (ECU) and one or several airbag modules, if the vehicle has a passenger bag, side-impact bag, etc.

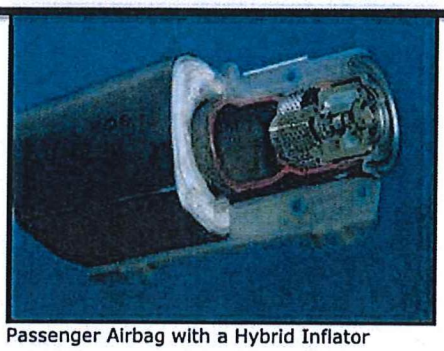
The **ECU** is usually installed in the middle of the car, between the passenger and engine compartment. If the vehicle has a driver airbag only, the ECU may be mounted in the steering wheel. The sensor (an micro-machined accelerometer) continuously monitors the acceleration and deceleration of the vehicle and sends this information to a micro processor where the crash algorithm - or the "crash pulse" - of a vehicle is stored. The algorithm, which is specific for each car model, is determined by crash tests, performed in one of Autoliv's nine crash test centers. Many vehicles have also remote sensors in the doors for side-impact airbags and satellite sensors in the front for early detection of the crash.

When the micro processor "recognizes" the crash pulse from the sensor, an electrical current is sent to the initiator (or squib) in the micro gas generators of the seat belt pretensioners and/or to the inflator of the airbag(-s) that should be deployed. Capacitors in the ECU are used as back-up energy, in case the main battery of the vehicle is disconnected during the crash. An electro mechanical safing sensor prevents cellular telephones and other electro magnetic interference from setting off the airbags inadvertently.



Driver Airbag with the Globoflator Inflator

The airbag module consists of an **inflator** (or gas generator) with an initiator, a textile bag ("cushion"), housing and, for driver bags, a cover for the steering wheel. The most common inflators use solid propellants, while hybrid inflators use a combination of compressed gas and a solid fuel.



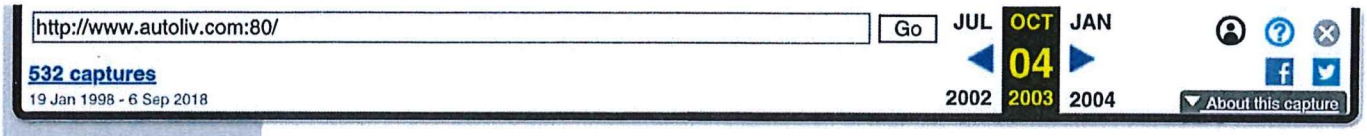
Passenger Airbag with a Hybrid Inflator

The size of the cushion varies from 35 to 70 liters for the driver side airbag and from 60 to as much as 160 liters for the passenger side airbag. The smaller bags (EuroBags) were developed by Autoliv in cooperation with Ford for markets where the wearing of seat belts is mandated by law.

The **housing** is usually made of steel, but Autoliv has also introduced housings in strong, light-weight plastics.

The **cover** over the driver airbag is made of plastics. It is forced opened by the pressure from the deploying bag. The cover has a split line to make it open at a low pressure and "hinges" to keep its doors in place.

The bag is fully inflated within 50 thousands of a second - half the time of the blink of the eye - and deflated within two tenth of a second.


http://www.autoliv.com:80/
Go
JUL
OCT
JAN
04
2002
2003
2004
532 captures
19 Jan 1998 - 6 Sep 2018
About this capture